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ABSTRACT

This Digest discusses the importance of and ways to foster activity and exercise in children. Following an introduction, the Digest is organized into four sections. The first section deals with the significant health benefits of physical activity, including: reduction in chronic disease risk; lowered risk of colon cancer; increase in bone density; reduction of anxiety, improvement in body image and mood; development of physical fitness; and promotion of weight control. Section two discusses childhood obesity. The third section assesses how much physical activity is enough and suggests that among young people such activity can be promoted by daily planned and structured physical education. The final section describes ways to promote physical activity among young people. It is reported that over the years, state requirements for daily physical education have eroded, and today no states currently have such a requirement. In addition to physical education, schools can promote physical activity in a variety of ways. For example, they can: promote collaboration between physical education and classroom teachers; provide extracurricular physical activity programs; coordinate physical activities with community agencies; encourage and enable parental involvement in physical activity; and provide physical and social environments that encourage and enable physical activity. Resources are included. (Contains 12 references.) (LL)

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Promoting Physical Activity and Exercise among Children

Liane M. Summerfield

Introduction

Physical inactivity has become a serious problem in the United States. More than half of U.S. adults do not meet recommended levels of moderate physical activity, and one-fourth engage in no leisure time physical activity at all (*Physical Activity*, 1996). Inactivity is more prevalent among those with lower income and education, and, beginning in adolescence, affects females more than males (NIH, 1995; *Physical Activity*, 1996). A pattern of inactivity, also known as sedentism, begins early in life, making the promotion of physical activity among children imperative. This Digest discusses the importance of and ways to foster activity and exercise in children.

Why Is Physical Activity Important?

Physical activity has been defined as "bodily movement produced by skeletal muscles that results in energy expenditure" (Pate, Pratt et al., 1995). There is no debate about the value of physical exertion–regular physical activity has significant health benefits, and even modest increases in energy expenditure can have health-enhancing effects, including:

- Reduction in chronic disease risk–hypertension, type 2 diabetes, high blood lipids, cardiovascular disease, and obesity. Even among children and adolescents, physical activity can prevent or delay the development of hypertension and can reduce blood pressure in those young people who already have hypertension (*Physical Activity*, 1996);
- Lowered risk of colon cancer;
- Increase in bone density;
- Reduction of anxiety, improvement in body image and mood;
- Development of physical fitness;
- Promotion of weight control through caloric expenditure. This benefit is of particular importance to children, who are experiencing the same epidemic of overweight as adults.

Childhood Obesity: A Cause for Concern

More children today are overweight or obese than ever before. Overweight means that the individual weighs more than is recommended for a given height; when this excess weight is in the form of fat, health problems may develop. Obesity is an excess of body fat. In children obesity has been variously defined as

- $\geq$20% over the recommended weight for height;
- $\geq$85th percentile for Body Mass Index, which is calculated by dividing weight in kg by height in m^2; or
- $\geq$25% of weight as fat for boys and $\geq$ 30% of weight as fat for girls (*Strategy Development*, 1996).

When the percent fat definition is used, data indicate that 11% of 6-11 year olds and 14% of 12-17 year olds are obese (*Strategy Development*, 1996), double the prevalence of 30 years ago (CDC, 1996). This is of particular concern because body weight and overfatness in children are significant cardiovascular disease risk factors, and the risk tracks into adolescence and young adulthood if not checked in childhood. In addition, obese children often experience exclusion from social groups and low self-esteem.

Particularly detrimental to health is central (abdominal) body fat, which is linked to cardiovascular disease and diabetes. Studies examining the relationship between physical activity and abdominal fat suggest that those who are more active are less likely to deposit fat in the abdominal area (NIH, 1995). Physical activity is thus a key element in the prevention and treatment of both chronic disease and obesity.

How Much Physical Activity Is Enough?

Health benefits can be derived simply from becoming more physically active, but the greatest benefits come from engaging in planned and structured exercise. Cardiovascular risk factors can be reduced and physical fitness enhanced with low to moderate levels of physical activity (40-60% of a person's maximal aerobic capacity) (Blair & Connelly, 1996). And, low- to moderate-intensity activity is less likely than vigorous exercise to cause musculoskeletal injury and sudden heart attack death during exercise (a very rare occurrence even for vigorous exercisers), while it is more likely to promote continued adherence to activity (Blair & Connelly, 1996; NIH, 1995).

Current recommendations state that children and adults should strive for at least 30 minutes daily of moderate intensity physical activity (Pate, Pratt et al., 1995). An alternate approach that may be equally beneficial would be to engage in 5-(Blair & Connelly, 1996) to 10-minute (NIH, 1995) bouts of moderate intensity activity throughout the day, for a total accumulation of at least 30 minutes for adolescents and adults and 60 minutes for children (Pangrazi, Corbin, & Welk, 1996). Walking briskly or biking for pleasure or transportation, swimming, engaging in sports and games, participating in physical education, and doing tasks in the home and garden may all contribute to accumulated physical activity.

Children and adults who already engage in regular activity may benefit from more vigorous activity. The specific amount of energy expenditure needed by children to decrease their risk of cardiovascular disease is not known; for adults, approximately 3 kcals/kg of body weight/day has been recommended (Zwiren, 1993). Weight in pounds can be converted to kg by dividing by 2.2. Thus, a 140-pound person (140/2.2 = 63.6 kg) should expend about 192 kcals/day (63.6 X 3).

How Can We Promote Physical Activity among Young People?

Quality Daily Physical Education

In addition to being physically active, children need to learn fundamental motor skills and develop health related physical fitness (cardiovascular endurance, muscular strength and endurance, flexibility, and body composition). Physical education, provided at school, is an ideal way to encourage activity and develop fitness among children and, for many children, will be their only preparation for an active lifestyle. For this reason, the Centers for Disease Control and Prevention (CDC), the National Association for Sport and Physical Education (NASPE), and the American Heart

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Association all recommend comprehensive daily physical education for children K-12.

Over the years, state requirements for daily physical education have eroded, and today no states currently have such a requirement (*Healthy People*, 1995). Not surprisingly, only a quarter of high school students participate in daily physical education, and only 19% of high school students are active for at least 20 minutes a day during physical education class (*Physical Activity*, 1996). The recent School Health Policies and Programs Study (SHPPS), conducted by CDC, determined that just 47% of middle/junior high schools and 26% of high schools require at least 3 years of physical education (Pate, Small et al., 1995).

Physical education offers many benefits: development of motor skills needed for enjoyable participation in physical activities; promotion of physical fitness; increased energy expenditure; and promotion of positive attitudes toward an active lifestyle. Evidence also exists that physical education may enhance academic performance, self-concept, and mental health (Allensworth, Lawson, Nicholson, & Wyche, 1997).

Other Ways to Incorporate Activity into Schools

In addition to physical education, schools can promote physical activity in a variety of other ways (much of this is based on CDC, 1997):

- Promote collaboration between physical education and classroom teachers. For example, physical education teachers might provide ideas for "fitness breaks" to classroom teachers, where 5-minute aerobic activities could be used to break up the school day.
- Provide extracurricular physical activity programs. Interested teachers and parents might be encouraged to establish developmentally appropriate clubs and/or intramural activities of a competitive and noncompetitive nature. Walking clubs, in-line skating, jumping rope, water aerobics, and intramural swim teams provide a few examples.
- Coordinate physical activities with community agencies. Schools might allow use of school facilities by community agencies that sponsor physical activity programs, facilitate training programs for volunteer youth coaches, invite community groups to an "activity fair" for students in the school gymnasium, or provide a listing of community physical activity resources to students.
- Encourage and enable parental involvement in physical activity. Parental activity level is very important in promoting activity among children. Schools can help encourage activity in parents by sending home activity homework that parents and children do together, recruiting parent volunteers for physical education classes, and sponsoring parent-child activity programs at school.
- Provide physical and social environments that encourage and enable physical activity. For example, schools might allow access to facilities before and after school hours and during vacation periods, encourage teachers to provide time for unstructured physical activity during recess and during physical education class, and help school personnel to serve as active role models by enabling and encouraging their own participation in physical activity.

Conclusion

Inactive adults have twice the mortality of adults who are at least somewhat active (Blair & Connelly, 1996). Schools that promote physical activity may have a significant impact on reducing childhood obesity, chronic disease, and, ultimately, adult mortality. Insofar as physical activity has been associated with increased academic performance, self-concept, mood, and mental health, the promotion of physical activity and exercise may also improve quality of life.

Resources

American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231. *http://www.amhrt.org/*

Center for Research on Girls and Women in Sport, University of Minnesota, 203 Cooke Hall, 1900 University avenue, S.E., Minneapolis, MN 55455. (612) 625-7327. *http://www.kls.coled.umn.edu/crgws/*.

National Association for Sport and Physical Education (NASPE), 1900 Association Drive, Reston, VA 20191; (703) 476-3410. *http://www.naspe@aahperd.org*

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